

# TheWeek

MAY 13, 2001



## OSTEOPOROSIS

It is not just a women's disease



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## *Introduction*

**L**eela, 65, has led an active life. A small and sprightly woman, she continues to take part in community activities even today. But, when she suddenly lost her balance while plucking flowers in the garden one day, she knew things would not be the same again. In an attempt to cushion her fall, she stretched out her right hand for balance. And before she knew it, she was in severe pain. She had fractured her wrist.

Sriram, 70, a busy surgeon of his times, enjoyed his routine morning walks till he tripped over a pot-hole on the road one day. Before he knew it he was lying flat on his back. People came around to help him. When they could not, they went to his house for help. He had fractured his thighbone.

Kusum was not yet forty and felt tired all the time. How her body ached! Her back was giving her a lot of problems. She had a hysterectomy done about ten



years ago when her son was just five years old. She consulted her gynaecologist but none of the medicines helped. Her back pain only worsened. Her friends suggested various remedies from acupuncture to hormone replacement therapy. But her doctor said there was the fear of cancer with these remedies. But the pain got intolerable.

All three of them are suffering from osteoporosis.

Osteoporosis was long believed to be a disease of post-menopausal women. But current statistics tell us otherwise. It is neither a disease of post-menopausal women nor a women's disease only. Let us look at some statistics.

As the average age of the world's population shifts upwards, the incidence and prevalence of osteoporosis and its economic burden on society is likely to increase further. Surveys based on data from developed countries show that the number of individuals over 45 years and above, has increased from 155 to 206 million between 1960 and 1980. It was expected to touch around 257 million by 2000!



## *What is osteoporosis?*

**O**steoporosis can be described as a disease of the bone, characterised by a serious loss of the bone mass. When the bone mass falls below the required level for mechanical support, fractures occur. This happens because of the disintegration of the bone architecture, which in turn increases the susceptibility to fractures of the hip, spine and wrist.

Our bones are like the bricks of a wall. They are systematically arranged and joined to make a composite structure—the skeleton. The cement that holds these bones together is provided by the calcium we eat as a nutritional supplement. Vitamin D is like the waterproofing we do to prevent leaks in the roof. It strengthens the struc-

**A normal bone (above)**

**An osteoporosis affected bone (below)**





## *Some facts about osteoporosis*

- ◆ In the United States, roughly one in every four women and one in every eight men, above the age of 50, have osteoporosis.
- ◆ About 32 per cent of women who live up to 80 years and more have hip fracture.
- ◆ Men are the victims of a third of all hip fractures that occur, and one third of these men do not survive over a year. In addition, men also have painful and debilitating fractures of the spine, wrist and other bones.
- ◆ Osteoporosis is responsible for 1.5 million fractures annually. Among them, more than half a million are vertebral fractures, 3,00,000 are hip fractures, 2,00,000 wrist fractures and 3,00,000 fractures of other bones.
- ◆ Approximately 37,000 people die each year from complications related to fractures caused by osteoporosis.

This trend is true not only for developed nations but also for developing countries. And the numbers are likely to shoot up, if one were to take into account poor diet, inadequate healthcare and the cost of the diagnosis and treatment. Moreover, there is a general lack of awareness of the disease.

ture by helping to absorb calcium to the maximum.

Apart from this, the body undertakes constant repairs of the bones. As the older ones crumble, new growth takes place all the time. The problem arises when the destruction of the bones takes place at a rate faster than the construction. This obviously leaves holes in the wall. Much the same happens in osteoporosis.

When the breakdown of the bone far exceeds regeneration, osteoporosis is the result. The cause of this breakdown can be multiple. Most often, it is because of the lack of the female hormones, estrogens or the over activity of a gland called parathyroid (that nestles cozily in the thyroid gland). When osteoporosis



## *How does it start?*

Let us take a simple anomaly of hair, another cause for great concern. It is known that we lose hair practically everyday, but we also grow new hair. But when our hair loss exceeds the growth, baldness results. So is the case with our bones. Every day, a small part of the bone mass is lost, while new bone mass is regenerated. This cycle of loss and regeneration is a continuous process. If, because of some reason, age being one factor, we are not able to generate new bone mass at the rate equal to our loss, osteoporosis results.

The regeneration of bone mass slows down considerably for men and women over 40, and at around menopause, the loss of bone mass is the greatest among women. The spine and hip region tend to lose more bone mass than the rest of the body, while women are additionally burdened with fragile wrists.

The loss of bone that accompanies advancing age actually begins much early in life for both the sexes, but proceeds more rapidly in women after menopause. While the exact reasons are not known, certain risk factors have been identified.

occurs, the basic design of the bone structure is attacked; as a result, the body weakens causing the bone to become fragile and break easily. In short, osteoporosis is like a thief who is spiriting away large quantities of bone—causing immense damage to the body. Since all this takes place silently and surreptitiously, the disease has earned the sobriquet 'the silent thief'.



## *Risk factors*

**I**t is wise to be aware of the risk factors involved, to know whether one is susceptible. Sometimes these are so mundane that one nearly always ignores them. A look at them will tell you how commonplace they are.

Is it hereditary? About 70 per cent of affected people have a genetic predisposition that includes how a person responds to external stress-causing factors. Yes, it is hereditary.

Among ethnic or racial origins, Whites and Asians are at a greater risk than Blacks and Hispanics, and women on the whole are more prone to the disease.

**Ageing:** In the elderly, additional problems like diminished vision, loss of hearing and the use of sleeping/anxiety reducing tablets increase the person's vulnerability to falls and fractures. Some of the drugs used to treat hypertension also cause the blood pressure to fall when the person stands up. Thereby it causes a reeling sensation that might result in a fall.

**Any factor that results in an estrogen deficiency:** At particular risk are women who have had an early menopause or those who have had their uterus and ovaries removed surgically (Hysterectomy with ovaries removed) at an age much younger than that of normal menopause.

**Certain medications can cause osteoporosis:** Ste-



roid therapy exceeding six months and certain anti-epileptic medicines over two years are known culprits. This is of particular importance where patients tend to repeat the prescription without medical advice. Prolonged bed rest and a sedentary lifestyle can also cause osteoporosis.

**Lesser known risk factors are:**

- ◆ Short, weak stature.
- ◆ Positive family history. That is if a person's parent, particularly the mother has had fractures in old age.
- ◆ High alcohol consumption is considered a high risk. In fact, habitual consumption of even moderate quantities like one to two drinks per day has been clearly identified as a risk factor in both men and women.
- ◆ Malnutrition due to eating disorders such as anorexia nervosa (compulsive desire to remain thin by not eating or vomiting soon after eating) is a risk factor. Fashion dictates need not necessarily coincide with good health choices. Drastic dieting and very strenuous exercises are known reasons for osteoporosis, which prevent the proper intake of calcium and its further loss by vomiting. This apart, it is a cause for a general breakdown in health because of malnutrition and anxiety disorders.



# Classification

**THERE** are different types of osteoporosis. They are:

## **Postmenopausal osteoporosis:**

Five to twenty per cent of women get affected by this problem some ten to fifteen years after menopause or at the cessation of their menstrual cycle. Thus, mostly women in their sixties and seventies are affected.

Deficiency of estrogen or the female hormone is supposed to be the cause of this. Most women lose nearly 2 to 5 per cent of bone mass a year in their first five years after menopause. Because of the drop in estrogen levels, this dramatically increases to nearly 35 per cent loss subsequently.

Nearly all of the bone loss associated with women is most often the result of estrogen deficiency rather than old age, which makes it a preventable disorder. Another point to be noted is that this loss begins at least two years before the onset of menopause.

## **Senile osteoporosis:**

This occurs in both men and women around the age of 70, and is because of the inability of the kidney to produce a precursor to Vit D. This results in decreased absorption of calcium. Both these factors add up to the fragile nature of the bone making it very vulnerable to fractures.



### **Secondary type:**

This occurs equally in both the sexes and is consequent to disease or ingestion of some medication.

Some of the diseases that can cause osteoporosis are:

- ◆ Cancers
- ◆ Hormonal imbalances like hyperthyroidism, or an excess of the thyroid hormone
- ◆ Gastro intestinal disorders like inflammatory bowel disease
- ◆ Rheumatoid arthritis.

The medications that could lead to osteoporosis on long-term ingestion are:

- ◆ Corticosteroids that are commonly used to treat asthma
- ◆ Cancer chemotherapy
- ◆ Anti convulsants or medicines used for epilepsy treatment
- ◆ Some antacids.

It is obvious that some of these diseases do require long-term usage, and the concerned specialist/consultant is the best judge of the drug schedule and duration.

### **Symptoms**

Since this silent thief hardly gives any warning of its presence till rather late in the disease, it is difficult to detect this disease by any classic presentation. In fact, there are no specific symptoms, except body pain or pain over one particular region like the middle of the back or a leg or arm.

Sometimes the pain may be severe and sudden in onset, consequent to a minor fall caused by a common incident like tripping over a stone. Activities as routine as a cough or a sneeze, or a simple bump can cause spontaneous fractures. The pain may subside in a few days, and the person is able to move about in



four to six weeks. If these incidents happen more than once, it's time to get medical help.

While a fracture of the hip or back would be extremely painful and render the person absolutely immobile, there are other fractures that cause severe pain which may gradually decrease in intensity after some time. These are due to microfractures and show up incidentally when the person is X-rayed for a complaint of pain or some other reason.

Loss of teeth in the absence of gum disease is a clue to bone loss. Change in the shape of the spine or loss of height (as seen below) are other clues. The backbone is made up of different bones much akin to a child's building blocks—one placed on top of the other.



Fractures can occur in one of two ways. One side of a bone may cave in, making it wedge-shaped instead of the rectangular shape, and this could result in the spine arching to one side. This exaggerated curvature of the backbone near the neck is called the



'widow's hump'. The curvature of the spine is increased. The bones can also totally collapse resulting in substantial loss of height. While such dramatic changes may not always occur, the backbone nevertheless continues to lose its density.

Most often, osteoporosis is diagnosed as a possible cause when a routine X-ray of a person complaining of severe pain shows a fracture, or when an elderly person is brought in with severe pain and is unable to move.



# Diagnosis

**W**hile a blood pressure reading can tell you if you have hypertension, or a urine or blood test can show if you have diabetes, there are no tests or other indicators to point an incriminating finger at osteoporosis.

While X-rays can show the site of a fracture, they cannot predict the loss of bone mass. Measurement of Bone Mineral Density (BMD) is the only tool helpful in the diagnosis. Bone density scans or bone densitometry scans are considered pretty reliable. These tests are most sensitive and can confirm the decrease of bone mass in a particular bone in any area of the body.

Anyone with factors that might reduce bone mass or accelerate bone loss should be tested, as should postmenopausal women and women nearing menopause, who are undecided about starting hormone replacement therapy.

After testing, persons found to be in the range that not only shows clear osteoporosis but also those that are in the range of osteopenia (decrease in calcium levels that will eventually lead to osteoporosis) should be considered for treatment.

The test is non-invasive. That is, no substance is passed through or injected into the body, and is convenient and easy. The person can walk in any time without following any restrictions whatsoever.



## *When do you need a BMD test?*

A densitometry test at the age of 30 is recommended for all. This will be a baseline to assess bone loss. Other than that, some of the important reasons to want to take a densitometry test are:

- ◆ Estrogen deficient women or women around the age of menopause so as to help make decisions about hormone replacement therapy.
- ◆ Patients with abnormalities of the backbone.
- ◆ Patients being treated for osteoporosis, to monitor changes.
- ◆ Patients receiving long-term glucocorticoid (steroid) therapy.
- ◆ Persons known to be suffering from hyperparathyroidism. (The parathyroid gland is situated within the thyroid and is involved in the calcium metabolism of the body.)

**Other reasons to want to take the test are:**

- ◆ Men with low testosterone levels as manifested by diminished libido and an ab-

normal increase in the size of the breast.

- ◆ Persons who are heavy drinkers or even moderate drinkers over a long period of time like 15 to 20 years. The same goes for smoking.

High suspicion of poor calcium intake for more than 10 years.

- ◆ Generally people suspected to have kidney stones, or do have a family history of kidney stones shun calcium by avoiding all foodstuffs known to contain high levels of calcium. Such persons fall under this category.
- ◆ Persons with gastro intestinal disorders like mal-absorption.
- ◆ Prolonged immobilisation due to fractures or any other condition.
- ◆ Rheumatoid arthritis.
- ◆ Use of anti-epileptic medicines for over 5 years.
- ◆ Prolonged use of excessive thyroid replacement.
- ◆ Postmenopausal women with two or more risk factors:
  - a. History of fractures in parents.
  - b. Loss of height over one inch.
  - c. Lifelong low calcium intake.

Periodic retesting is necessary to monitor the progress of age-related loss and the response to therapy.

On an average, one can suppose that an individual would need around four densitometry tests in his/her lifetime to continuously assess the status of bone loss and the efficacy of treatment instituted.



# Prevention

**A**s with most diseases, prevention is always better than cure. More so in the case of disorders like osteoporosis where despite advances in treatment, the lost bone mass cannot be totally replaced. Hence, the key to alleviation of symptoms lies in the prevention, and to be effective, it is best started early, preferably in the teens.

## Some basic facts:

- ◆ Treatment of osteoporosis has had limited success.
- ◆ Prevention is a more useful approach and ideally women at high risk should be identified before menopause, when preventive measures can be instituted.
- ◆ Treatment for men is poorly researched. The US Food and Drug Administration (FDA) have not yet given the green signal for the use of drugs approved for women to be used for the male patients. In such a situation, preventive measures remain the mainstay.

## Preventive measures are:

**Exercise:** Preventive measures include regular exercise against gravity to make the bone stronger. Walking, hiking, jogging, stair climbing, tennis, exercise

classes or other weight-bearing exercises protect the bone mass when accompanied by a daily intake of calcium and Vit D. Exercise not only improves the health of the bone but also increases muscle strength, coordination and balance and leads to an improved overall health. Although exercise is good for someone with osteoporosis, it should not put sudden or excessive strain on bones.

**Lifestyle modifications:** A simple modification of diet and lifestyle can reduce the risk of osteoporosis. Appropriate dietary changes include reduction of alcohol and caffeine intake and an increase in calcium intake through diet or supplementation. One could also stop smoking to reduce the risk.

Prevention should begin early in life: Teenagers should be taught the importance of exercise and diet rich in calcium like milk, curd, cheese, nuts and green leafy vegetables.

**General caution:** Prevention of falls is of special concern to men and women with osteoporosis. Falls increase the likelihood of fractures in hip, wrist and spine or other parts of the skeleton. Thus, it is important that individuals with osteoporosis be aware of any physical changes that might affect their balance and gait.

A degree of cautiousness in all movements could largely help. Of concern are elders climbing stools or chairs to tackle small jobs, stretching the back or turning to reach for objects, hurried actions like rushing to answer the telephone or the door.

Senior citizens should take into account that they are already handicapped by diminished vision, hearing loss and arthritic pains and should avoid undue strain to themselves.



## Treatment

**W**hile several treatments are available, osteoporosis remains largely under-diagnosed and even more, under-treated disorder. In India, the awareness of this disorder is at its nascent stage. While the word osteoporosis is freely used, the implications as yet are not fully understood by many. Also, we are inundated with misleading advice as to the intake of calcium because of its so-called propensity to form stones in the kidney, a somewhat deprived diet in calcium-rich foods, even among the well to do, and a lack of exercise in all age groups. It is time we took stock of things to at least prevent this disorder in the younger generation.

### Calcium supplementation

#### Some guidelines:

- ◆ A lifetime of adequate calcium intake decreases fracture risk.
- ◆ Healthy and strong bones in youth could safeguard against osteoporosis in later years.
- ◆ Increased intake of calcium a few years before the onset of menopause is beneficial and helps the lady to enter menopause with greater bone mass.
- ◆ Increased intake of calcium soon



after menopause does not particularly prevent bone loss that happens in the first few years after menopause. Hence it is useful to start calcium supplements much before the commencement of menopause.

Increased intake of calcium from natural sources particularly dairy products such as milk, curd and cheese may help prevent or even slow down the onset of osteoporosis, although the effects are not great.

The recommended dose of calcium is 1,500 mg for women already in menopause, and 1,000 mg, for the ones who are a few years away from menopause. These doses have been found to prevent fractures of the hip and backbone in the elderly.

The combination of 1,200 mgs of calcium and 800 IU of Vit D has been found to be particularly effective.

Most of us tend to look at the recommended calcium dosage as too much. In this case perhaps too much is too little! Unless there is cause for concern as in persons with kidney stones, the recommended quantities of calcium are best adhered to. It is also futile to expect to cover the gap in our calcium requirements from dietary sources as this is not really possible given the nature of our food habits.

### **Vitamin D supplementation**

Vit D plays an important role in calcium absorption and in the normal mineralisation of new bone. It increases the absorption of calcium from the intestine and helps in generating new bone mass. Our body derives Vit D from two sources—sunlight and food. When we are exposed to ultraviolet rays, a chemical called sterol in the skin is changed to an inactive form of Vit D. This inactive form must first be converted into an active form in order to exert its effect. This



process is initiated in the liver where the first step of the conversion takes place to form 25-hydroxy Vit D 3. The next step takes place in the kidney where it converts to 1, 25 di-hydroxy Vit D 3. It is this form that is required for the absorption of calcium.

In old age, this capacity to convert the inactive form to active form of Vit D is reduced. At this point, one needs to supplement the amount of Vit D as the body is not able to adequately provide for it.

Some foods also contain Vit D. Butter, eggs and fatty fish such as herring, mackerel and salmon, naturally contain this vitamin. Other sources are foods fortified with Vit D such as milk, margarine and some breakfast cereals.

Vit D supplementation is particularly useful in the elderly as they are prone to Vit D deficiency often associated with hyper parathyroidism – a very common reason for osteoporosis. Low doses of Vit D with or without calcium supplementation reduces hyper parathyroidism in the elderly and may improve bone strength in the femur or thighbone.

Daily intake of low doses of Vit D between 400 to 800 IU is a must, which should not exceed 800 IU. The problem is the thin dividing line between treating osteoporosis and crossing over to kidney stones. Hence the reason for careful monitoring. More importantly, self-medication should be avoided, treating it as a mere vitamin.

### **What is hormone replacement therapy (HRT)?**

Much has been said for and against HRT in the medical field and in information available through the media. There are some misconceptions we need to clear. Women treated with estrogen replacement therapy:

- ◆ Have a far lesser rate of fractures. The risk rate is

reduced by more than 50 per cent.

- ◆ Have a lower risk of heart attack and stroke. The overall death rate is reduced.
- ◆ Have relief from bothersome symptoms associated with menopause such as hot flushes, headaches, aching joints and bladder problems.
- ◆ The benefits of estrogen far outweigh the risks in most women.

The issue is of paramount importance as the age group of women attaining menopause is decreasing day by day due to surgical removal of the uterus and the ovaries. This results in paradoxical situation of the body of a 30 or 40-year-old with the stamina of a 70-year-old! In such cases estrogen replacement or HRT is absolutely indicated, except where there is reason to believe that there are strong reasons to deny it.

### **How long should one continue HRT?**

The answer is—lifelong! Studies with varying durations of estrogen have shown that it is best to view this as a lifelong commitment.

The adverse side effects of HRT like breast cancer, cancer of the uterus, formation of blood clots and increased blood pressure can be virtually eliminated by administering estrogen cyclically and balanced with progesterone. In short, imitating nature by supplementing the same hormones as in a normal menstrual cycle! Estrogen is available in pill form and also as a skin patch. A talk with your doctor on the benefits and the adverse affects of HRT will set your mind at ease and erase the mindset that any drug prescribed for a lifetime is being abused! Quite simply, if one has to imitate nature in its cycle, a life-long usage is but natural!



### Some newer drugs

A group of drugs called non-hormonal replacements or Selective Estrogen Receptor Modulators (SERM) have been found effective against all the four hormone dependent diseases namely:

- \*Osteoporosis
- \*Coronary artery disease
- \*Cancer of the uterus
- \*Breast cancer

This drug acts in a way that estrogen works on the bones and the heart without the adverse effects it causes in the uterus and the breast tissue. An increase in the BMD in the spine and hip has also been noted. It also beneficially lowers the cholesterol levels. The drug Raloxifene at 60 mg a day was found to show a beneficial increase in BMD over a two-year period. Calcium supplements must be taken along with these drugs.

Another drug called Calcitonin is very beneficial. However, it cannot be taken orally and is available as an injectable or nasal spray. The most common side effect is a runny nose; but then this is common with any medicine that is sprayed in the nose and is not specific to calcitonin spray. However, being a protein, it does give rise to allergies. These side effects do alter the fact that the drug is extremely useful in osteoporosis treatment.

A drug that has more than proved its worth is Alendronate. It is very useful in cases where previous fractures have occurred as it affords protection against further fractures in these patients. They are also effective in osteoporosis caused due to steroid intake. For best results they should be taken on an empty stomach with a glass full of water first thing in the morning, remain upright for at least thirty minutes after taking it and have nothing to eat or drink during this time. However, people with renal prob-

lems should not take it.

All these drugs need to be prescribed after clinical evaluation and BMD tests. Hence, it is very important that one should not self medicate or even attempt to interpret the BMD test on their own. The analysis of the test requires specialised knowledge and is best left to the prescribing doctor.



## FAQs

### **Isn't osteoporosis just a part of growing old like hair turning white or developing a cataract?**

Not so. While it is true that it was till recently thought to be just a process of growing old, we now know it is a preventable disorder where various factors other than old age come into play. It is now described as a preventable condition (unlike old age) and reasonable care can alleviate it, if not completely wipe out the condition.

### **Isn't osteoporosis a disease of women?**

Men also develop osteoporosis; it is just that the incidence is lower. Perhaps, the reasons are their participation in many activities and leading an outdoor life during the developing years. Thanks to the Indian ethos, the male of the species is assured better nutrition with a richer source of calcium. The reason for the increased prevalence in women is because they have the protective umbrella of hormones up to mid life. When they lose this protective cover, bone loss is sudden, resulting in osteoporosis. In men, the bone loss is more gradual. In spite of all these differences, 20 per cent of all osteoporosis patients are men.

**Will I have any warning signs that I am developing osteoporosis?**

Not really. The loss of bone is silent. A person can be feeling on top of the world today, and suddenly have a hip or wrist fracture tomorrow. In fact, the very first 'felt' sign may well be a fracture.

**When does one need to have a bone densitometry test done?**

For healthy individuals, the first test may be done when they are 30 years old. This will give us a base line as to whether the person needs to go on any supplements immediately.

In persons who are already being treated for osteoporosis, the test may have to be done annually to monitor treatment.

Likewise, if a person is on a long-term therapy with steroids or with spinal deformities, a BMD test is recommended to assess bone damage so that treatment can be started immediately.

**HRT causes breast cancer and blood clots. So why should I take HRT?**

The benefits of HRT outweigh the side effects. While women with a family history of breast cancer or clotting diseases are advised against HRT, they can be put on the newer drugs like Raloxifene, which are non-hormonal.

**Are men treated with HRT?**

No. So far, drugs like HRT or the newer drugs like Raloxifene or Alendronate are not to be used in men. The mainstay of therapy in men is calcium and Vit D.

**Can a person with osteoporosis exercise?**

Yes. Gentle exercise like walking helps to strengthen muscles and also helps in maintaining balance. How-



ever, exercises that put undue strain on the bones and joints are best avoided. Yoga is helpful too.

### **What is the significance of BMD testing?**

With the help of this test, your physician can be alerted as to whether there is bone loss before the person has any symptoms. This way he can commence treatment with supplements, and arrest and control the process of bone loss. Fractures result in confinement to bed that is very demoralising. It often leads to depression apart from loss of manhours for the patient and also the caregiver. A simple test and appropriate action can well protect the person from this sad plight.

### **Why this sudden talk of osteoporosis? My grandmother was active till she died at nearly hundred years without having any problems.**

You said it! She was active all through her life, probably had a late menopause and had no family history of the disease. It is also possible that she had a sub-clinical disease that was not diagnosed. Her aches and pains were simply put down to those incidental to old age. To this day, osteoporosis remains largely undiagnosed and inadequately treated or not treated at all.

Having accepted that osteoporosis is more than an old age phenomenon, and having resolved to get tested for the same and initiate therapy if required, one would benefit by following some safety tips around the house:

- ◆ Watch out for slippery floors—the pretty shining granite and ceramic floors are particularly slippery when wet.
- ◆ Bathrooms that are always wet are another area of danger; particularly for the elderly who are slightly incontinent and tend to run to the bathroom.

- ◆ Avoid small rugs around the house. A foot on the rug and the other on the floor has all the ingredients for a fall.
- ◆ Wear footwear with a grip or better go bare foot around the house.
- ◆ Hold railings while climbing stairs. Railings in bathrooms are of great help and are suggested as possible additions to the house when you are in the vulnerable age group.
- ◆ Avoid climbing on stools and chairs to get things done.
- ◆ Use night-lights for navigation during the night.
- ◆ Do not clutter up walking space. If you have moved furniture, please see that all the people are well aware of the change.
- ◆ Pets are also a potential hazard. A frisky pet is a sure cause for tripping over.



**Finally, answer this questionnaire and see for yourself if you are in the high-risk category.**

Are you slim and small?	Yes/No
Do you have a family history of osteoporosis?	Yes/No
Is your diet low in dairy products and other sources of calcium?	Yes/No
Have you smoked or consumed alcohol over a long period?	Yes/No
Are you taking steroids or thyroid medication over a long time?	Yes/No
Have your periods stopped for reasons other than pregnancy or lactation?	Yes/No
Are you a postmenopausal person?	Yes/No
Have you fractured any part of your body for inconsequent reasons?	Yes/No
Have you had a hysterectomy with removal of ovaries?	Yes/No
Do you lead a largely sedentary lifestyle?	Yes/No

If you have answered 'yes' to even two of these questions, it is advisable for you to take a bone densitometry test to ascertain your bone density. It could well be the time for you to start off on supplements and gentle exercises.

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#### THE WEEK SUPPLEMENT

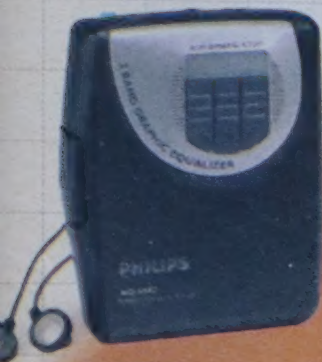
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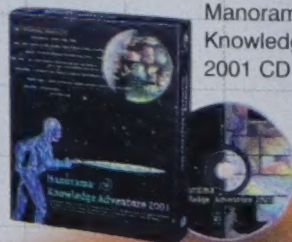
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